Whether this be indeed the case or not, can of course only be tested by actual working during a sufficiently long period of time. The method as described by Herr Kassner is briefly as follows. Calcium plumbate in the form of spongy porous pieces is first exposed to the action of moist furnace gases, which have been previously well washed, at a temperature not exceeding 100° C. The calcium plumbate under these conditions rapidly absorbs the carbon dioxide contained in the furnace gases, becoming thereby decomposed with formation of calcium carbonate and free peroxide of lead; that is to say, the acid properties of carbon dioxide are superior to those of lead peroxide, and so the former expels the latter from its state of combination with lime. This decomposition is unaccompanied by any change of form, the spongy pieces of material remaining precisely the same in shape and texture, like the pseudomorphs of mineralogy. The product of this first operation, when fully saturated with carbon dioxide, is transferred to a strongly constructed retort heated to redness, when oxygen is rapidly disengaged. The evolution of the oxygen is facilitated by leading superheated steam through the retort. When the peroxide of lead has yielded up most of its available oxygen, carbon dioxide commences to be evolved, and subsequently the issuing gas is pure carbon dioxide, which is collected separately. The carbon dioxide evolved during the intermediate phase is removed from the oxygen by allowing the gases to pass over a further quantity of calcium plumbate, which absorbs it entirely, allowing only pure oxygen to escape. The last phase in which pure carbon dioxide is evolved is carried on to completion, after which the residue is readily reconverted into calcium plumbate, for use in a subsequent operation, by driving a current of air through the retort.

In addition to Kassner's process, above described, another has been patented by Peitz, in which instead of furnace gases pure carbon dioxide is employed. Le Chatelier has also recently published a paper upon the subject, in which, however, he does not appear to have been acquainted with the whole of Kassner's publications. Le Chatelier concludes that calcium plumbate gives up its available oxygen by merely heating it to a temperature of 200° higher than that employed in Brin's process in the case of barium peroxide, and that the heated residue absorbs oxygen from the air again much more rapidly than the latter substance. Kassner has already previously stated these facts, and now asserts that his indirect method possesses two great advantages over the direct one proposed by Le Chatelier, namely, that a lower temperature is required, and a consequent saving of fuel and wear of retorts effected, and that pure carbon dioxide is obtained as a very valuable by product. The very fact, however, that there are so many possible modes of treating calcium plumbate, goes far to indicate that there is at least some ground for the proposal to employ it as a substitute for barium peroxide.

Notes from the Marine Biological Station, Plymouth.—Last week's captures include the Polychæte *Eunice Harassii*, the Decapod *Pirimela denticulata*, and the Opisthobranchs *Hermæa bifida*, *Embletonia pulchra*, *Antiopa hyalina*, and *Thecacera pennigera*. The floating fauna retains its recent character, *Muggiæa atlantica*, *Evadne Nordmanni* and Ophiuroid *Plutei* having been especially plentiful. The larvæ of *Polygordius*, *Magelona*, *Nerine*, *Phoronis* and of several Crustacea Decapoda have been taken; and Müller's Polyclad larvæ have made their first appearance, although as yet only in small numbers. *Pilidium* has been scarce, but other Nemertine larvæ fairly numerous. *Doliolum Tritonis*, first recorded a fortnight since, has been represented by several specimens in almost every haul of the tow-nets. The following animals are now breeding:—The Polyclads *Eurylepta cornuta* and *Stylostomum variabile*, the Polychæte *Ophryotrocha* (in the aquarium), and the parasitic Isopod *Pleurocrypta Galatheæ*. The Gymnoblastic Hydroids *Perigonimus repens* and *Podocoryne carnea* are giving off medusæ.

The additions to the Zoological Society's Gardens during the past week include a Malayan Bear (*Ursus malayanus*, ♀) from Malacca, presented by Mr. E. Sydney Wooduviss; a Feldegg's Falcon (*Falco feldeggi*) from Morocco, and two White-shafted Francolins (*Francolinus leucoscepus*, ♀ ♀) from North-east Africa, presented by Lord Lilford, F.Z.S.; two Common Buzzards (*Buteo vulgaris*) from Europe, presented by Mrs. Henry Goodbun; a Ring Ouzel (*Turdus torquatus*, ♂) from British Isles, presented by Mr. Samuel Radcliffe; two Sulphury Tyrants (*Pitangus sulphuratus*) from South America; a Chukar Partridge (*Caccabis chukar*) from North-west India, and a Bamboo Partridge (*Bambusicola thoracica*) from North China, presented by Mr. H. H. Sharland; a Land Rail (*Crex pratensis*) from British Isles, presented by Mr. W. Stanley; an Arabian Baboon (*Cynocephalus hamadryas*, ♀) from Arabia, and a Hairy Tapir (*Tapirus roulini*) from Columbia, deposited; two Sun Bitterns (*Europyga helias*, ♂ ♀) from South America, four Patagonian Cavies (*Dolichotis patachonica*, ♂ ♂ ♀ ♀) bred in France; an Elliot's Pheasant (*Phasianus ellioti*, ♂) from China, three Chilian Teal (*Querquedula creccoides*) from Antarctic America, and two Viscachas (*Lagostomus trichodactylus*, ♂ ♀) from Buenos Ayres, purchased.

OUR ASTRONOMICAL COLUMN.

The Transit of Venus of 1874.—The reports and drawings of the New South Wales observers of this transit have already been published by the Royal Astronomical Society, so that the volume which we have received, containing the observations, published by authority of her Majesty's Government in New South Wales, cannot be looked upon as containing much that is new. Mr. Russell, the Government astronomer, under whose direction this work has been compiled, seems to have taken great pains in bringing it out, for besides a long introduction summing up the results, and separate accounts of each of the reports, the book is illustrated with several photographs and drawings, a frontispiece containing photographs of the observers, and is bound in a very elaborate cover. The value of this publication lies in the fact that each observer's record is published in full, and is accompanied by numerous printed diagrams, which help to make more clear the various descriptions of phenomena that were noticed. Passing over the observations of contacts, we may refer to some of the physical phenomena which seemed to have claimed attention. With regard, first, to the black drop, it seems that only those who were using telescopes of small aperture, $1\frac{1}{2}$ to 2 inch, and low power eyepieces, saw it, while on the photographs not the slightest trace of it could be seen. The evidence, as far as the New South Wales observations go, shows, as Mr. Russell states, that "the black drop does not seem to be due to the atmospheric conditions, but rather to the imperfections of telescopes of small apertures and low power." The curious "faint tremulous shaking," as noticed at the times of the planet's ingress and egress, are put down to the temporary unsteadiness in the atmosphere. Three important phenomena which seem to have been generally observed were the rings of light and the halo seen surrounding the planet, and the ring of light round that part of the planet projected on the sky. Mr. Russell is of opinion that the atmosphere of Venus probably does not extend far enough to produce the observed phenomena of the halo, but, perhaps, a part of it could be attributed to the haze in the atmosphere caused by the forming of moisture at that time. The bright ring, described as very brilliant, was found to affect the chemicals more than the sun itself, as shown on the photographic plates; its brilliancy accounts for it being only seen on the limb not projected on the sun, and it is suggested that perhaps under favourable conditions this halo might be seen when the planet is lost in the sunlight.

The Planet Venus.—Some time ago we noticed in these columns a short monograph on the "Planet Jupiter and his

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Satellites," by Ellen M. Clerke. We have now before us a second one, entitled "The Planet Venus," in which the authoress lays before us in a pleasant manner a similar summary of the more important points connected with this planet's appearance. Commencing with a few words with regard to the position of Venus with relation to the other planets in the solar system, one is introduced successively to her changes of aspect due to her varying positions in her orbit, to the "silver crown" or halo produced by the refraction of the sun's rays round her globe, and to her rotation, general appearance, and polar caps. Her appearance at times of transit, and the phantom satellite, are then dealt with, the concluding chapter speaking of her in connection with the Star of Bethlehem. In this last reference is made to the "enhanced splendour with which she occasionally—once or twice in a century or so—shines at such times." That the planet does assume this increase of brightness, in addition to that due to her position, seems very doubtful, and the explanation here given to account for it depends on the luminous clouds theory suggested by the lectures on the liquefaction of gases by Prof. Dewar. The monograph is well worth a perusal, and should be widely read.

"Memoire della Societa," &c.—Among the contributions to these memoirs for the month of July will be found a detailed account of the late eclipse of the sun as observed from the Royal Observatory of Catania; a note by Millosevich giving some data with a map for the eclipses of May 28, 1900, and August 30, 1905; and the spectroscopic observations given in graphical form of the sun's limb, made at Palermo and Rome during the months of October, November, and December of 1891.

GEOGRAPHICAL NOTES.

In the September number of the *Geographical Journal*, Mr. Fred. Jeppe has a paper dealing in great detail with the Zoutpansberg gold-fields in the north of the Transvaal, illustrated by a new map of the district on a large scale, and by several photographs of characteristic scenery. The paper is historical as well as topographical, and contains an interesting account of the ancient workings in the Palabora region. The difficulty of orthography of place-names is referred to, several examples of alternative spelling being given, of which the series Li-Thaba, Lehlaba, Lechlaba, Lethaba, Letaba, Taba is characteristic. The district appears capable of great development when difficulties of transport are overcome by a branch from the Delagoa Bay railway.

Dr. R. Hansen contributes a paper to the last number of *Petermann's Mitteilungen* on the changes in the coastline of south-western Schleswig, with maps showing the coast as it existed in 1240, 1634, and 1892. These maps present a striking picture of the progressive diminution in area of the islands north of the mouth of the river Eider, especially Nordstrand, while those immediately adjoining the river mouth have been united with the mainland, and extended in area by the erection of dykes. As the islands have been inhabited from very early times, and protected to a certain extent by dykes, the process of coast-erosion has not been as continuous and gentle as would naturally be the case, but it has been a succession of artificial catyclasms—if the phrase may be used—brought about by exceptional storms destroying the sea-walls. In the old time each of these catastrophes was recorded amongst the islanders by the name of the patron saint of the day when it occurred.

Petermann's Mitteilungen also publishes a new map of Chitral and the surrounding districts of the Hindukush, by Mr. F. Immanuel, who describes the region in a short article.

Mr. H. M. Dickson spent the month of August on board H.M.S. *Jackal*, on behalf of the Fishery Board for Scotland, in carrying out a series of physical observations on the water between the Orkney, Shetland, and Faeroe Islands. This work was, to a certain extent, in concert with that being done by the Danish and Swedish Governments on the entrance to the Baltic and the neighbouring ports of the North Sea.

MEETING OF THE FRENCH ASSOCIATION.

The twenty-second meeting of the Association Française pour l'Avancement des Sciences was held this year at Besançon (Department du Doubs.), capital of the old province of Franche Comté. Few towns in France, even although small, are wanting in historic or antiquarian attractions, and in these respects Besançon has much to interest the antiquarian as well as the man of science, and therefore on its own merit is well worthy of a visit. The meeting of the French Association in this town not only enabled many to see it who otherwise would perhaps never have had occasion to do so, but owing to the facilities afforded, both by the municipality and by the civil and military authorities, practically everything interesting in the town and in the environs was liberally put within the reach of the members of the Association.

The meetings of the Association were held in the Lycée, which was built by the Jesuits about the commencement of the seventeenth century, and by reason of the great number of class-rooms afforded the necessary facilities for the meetings of the different sections for correspondence, &c.

The Association, although modelled on the lines of the British Association, has a slightly different scope, owing to the conditions which brought it into existence. It really commenced as the "Association Scientifique de France" in 1864, when it was founded by Le Verrier, but this subsequently to 1871 became combined with the Association Française pour l'Avancement des Sciences, the object of which was not only scientific after the mode of the British Association, but also aimed at reviving the study of science and of stimulating scientific research in the departments by bringing French scientific men together in the different principal towns throughout the country, enabling them thus to become better and more practically acquainted with France as a whole, and with the wishes, wants, and requirements of the populations. This patriotic object has been well kept in view, and the cordiality of the reception afforded to the Association wherever it goes shows how well its work is appreciated by the country. It would therefore follow that the study of the district visited forms an important part of the work of the Association, and that the "Excursions" are just as much sought after as in the meetings of the British Association.

The business usually commences with a general meeting, held either in the theatre of the town visited or other public building capable of affording the necessary facilities; in this case it was held in the theatre, a remarkable structure dating back to 1778, and inaugurated in 1784 by the Prince de Condé and his son, the Duc de Bourbon. On the stage facing the house was the table, at which sat the principal authorities of the town, civil and military, the president and principal officers of the Association, and ranged behind them the invited guests, notabilities, and chairmen of sections or committees, &c., evening dress being practically *de rigueur.* The business commenced by the Maire of Besançon reading an address of welcome to the Association, and of hearty sympathy with its objects. Then the president for the year, Dr. Bouchard, Membre de l'Institut and de l'Académie de Médicine, Professeur à la Faculté de Médicine de Paris, read his address, of which the following may be taken as the leading points. Having thanked the town of Pau for the reception given to the Association in 1892, and thanked the Maire of Besançon for the cordiality of his welcome, he defined the double object sought by the French Association's scientific progress, having for ulterior aim the greatness of their country. He paid a well-merited compliment to Besançon for its traditional love of learning and spirit of culture manifested in its celebrated men and scientific institutions. Turning then to the subject proper of his address, he expressed the desire to speak of the scientific movement and the position of scientific men at the present period, and in order to speak with competence he proposed to take his examples from the profession "which he cultivates, teaches, and practises," being justified in doing so by the fact of his having been called on to preside in his quality of a doctor. He then pointed to the wonderful development of scientific study at present, and stated that in the Faculty of Medicine of Paris 1200 students present themselves each year for the degree of M.D. (Doctorat en Médicine); of these 700 soon give up, while 500 persevere and attain their degree.

He pointed out that, whatever the causes, it is manifest that during the past fifteen years the number of students has been on the increase. He then entered on an analysis of the causes of this movement which extend to other branches of science.

"It has been said that the German schoolmaster was the conqueror at Sadowa; it was repeated after more recent disasters. It is false," but the "*mot fit fortune chez nous,*" and the

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